	Application No.	Applicant(s)
Notice of Allowability	09/767,280	RISING, HAWLEY
	Examiner	Art Unit
	Kelvin E Booker	2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *After-Final Response, Issued May 13, 2004*.

2. ☒ The allowed claim(s) is/are *renumbered claims 1-20*.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
        1) ☐ hereto or 2) ☒ to Paper No./Mail Date *6*.
    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____ .
    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____ .

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions

be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To

ensure consideration of such an amendment, it MUST be submitted no later than the payment of

the issue fee.

Claims 1 and 10-12 have been amended as follows:

1. A computer implemented method for designing a set of wavelet basis, the method

comprising:

constructing a neural network of arbitrary complexity using a discrete and finite Randon

transform;

designing an input wavelet to fit a particular problem;

inputting a wavelet prototype designed to fit a particular problem into the neural network,

and using backpropagation to produce an output; and

modifying the input function of the neural network using the output.

10. A system for designing a set of wavelet basis, the system comprising:

a means for constructing a neural network of arbitrary complexity using a discrete and

finite Randon transform;

a means for designing an input wavelet to fit a particular problem;

a means for inputting a wavelet prototype designed to fit a particular problem into the neural network, and using backpropagation to produce an output; and

a means for modifying the input function of the neural network using the output.

11. A computer readable medium comprising instructions, which when executed on a processor, perform a method for designing a set of wavelet basis, the method comprising:

constructing a neural network of arbitrary complexity using a discrete and finite Randon transform;

designing an input wavelet to fit a particular problem;

inputting a wavelet prototype designed to fit a particular problem into the neural network, and using backpropagation to produce an output; and

modifying the input function of the neural network using the output.

12. An apparatus for designing a set of wavelet basis, the apparatus comprising:

a neural network constructor that uses a discrete and finite Randon transform to construct a neural network of arbitrary complexity;

a designing module to design an input wavelet to fit a particular problem, the designing module coupled to the neural network constructor;

an input module for inputting a wavelet prototype designed to fit a particular problem into the neural network, and using backpropagation to produce an output, the input module coupled to the designing module; and

a modifier module to modify the input function of the neural network using the output, the modifier module coupled to the input module.

Marked version of the modified claims:

1. A <u>computer implemented</u> method [of]<u>for</u> designing a set of wavelet basis, the method comprising:

constructing a neural network of arbitrary complexity using a discrete and finite Randon transform;

designing an input wavelet to fit a particular problem;

[feeding an] <u>inputting a</u> wavelet prototype designed to fit a particular problem [through] <u>into</u> the neural network, and [its] using backpropagation to produce an output; and

modifying [an] <u>the</u> input function of the neural network using the output.

10. A system for designing a set of wavelet basis, the system comprising:

<u>a</u> means for constructing a neural network of arbitrary complexity using a discrete and finite Randon transform;

<u>a</u> means for designing an input wavelet to fit a particular problem;

<u>a</u> means for [feeding an] <u>inputting a</u> wavelet prototype designed to fit a particular problem [through] <u>into</u> the neural network, and [its] <u>using</u> backpropagation to produce an output; and

<u>a</u> means for modifying [an] <u>the</u> input function of the neural network using the output.

11. A computer readable medium comprising instructions, which when executed on a processor, perform a method for designing a set of wavelet basis, the method comprising:

constructing a neural network of arbitrary complexity using a discrete and finite Randon transform;

designing an input wavelet to fit a particular problem;

[feeding an input] inputting a wavelet prototype designed to fit a particular problem [through] into the neural network, and [its] using backpropagation to produce an output; and

modifying [an] the input function of the neural network using the output.

12. An apparatus for designing a set of wavelet basis, the apparatus comprising:

a neural network constructor that uses a discrete and finite Randon transform to construct a neural network of arbitrary complexity;

a designing module to design an input wavelet to fit a particular problem, the designing module coupled to the neural network constructor;

a [feeder to feed an input] input module for inputting a wavelet prototype designed to fit a particular problem [through] into the neural network, and [its] using backpropagation to produce an output, the [feeder] input module coupled to the designing module; and

a modifier module to modify [an] the input function of the neural network using the output, the modifier module coupled to the [feeder] input module.

Drawings

2. New corrected drawings are required in this application because the applicants failed to

provide corrected drawings in response to the objections noted in the Draftsperson's Patent

Drawing Review (Form PTO-892), issued in conjunction with the initial Office Action (see

paper no. 6). The corrected drawings are required in reply to the Office action to avoid

abandonment of the application. The requirement for corrected drawings will not be held in

abeyance.

Allowable Subject Matter

3. **Claims 1-20** are allowed.

4. The following is an examiner's statement of reasons for allowance:

the cited prior art, either singly or in combination, fails to anticipate or render obvious an

application specific system and method for designing a set of wavelet basis consistent with the

limitations disclosed **claims 1 and 10-12**, wherein application specific wavelet transforms are

generated as a result of optimizing input wavelet prototypes by means of backpropagation,

whereby the neural network employed in the optimization process uses discrete and finite

Randon transforms as a basis for functional processing.

Sahiner et al., "Interative Inversion of the Radon Transform", teaches of using statistical

methodologies in employing variable filtering techniques for processing Radon transforms, but

fails to explicitly focus on the above mentioned method of using the backpropagation of a tuned

neural network in designing application specific wavelets.

Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

5. The following prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

Meir et al., "Stochastic Approximation by Neural Networks Using the Radon and

Wavelet Transformations".

6. An inquiry concerning this communication or earlier communications from the examiner

should be directed to Kelvin Booker whose telephone number is (703) 308-4088. The examiner

can normally be reached on Monday-Friday from 7:00 AM-5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Anthony Knight, can be reached on (703) 308-3179. The fax number for the

organization where this application or proceeding is assigned is (703) 872-9306.

An inquiry of a general nature or relating to the status of this application proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

K.E.B.

Art Unit 2121

June 28, 2004

Anthony Knight
Supervisory Patent Examiner
Group 3600